



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

#1182
5-302

In re application of:

ABE ET AL

Application No.: 09/726,588

Art Unit: 1725

Filed: December 1, 2000

Examiner: K. Stoner

For: THERMOSETTING SOLDERING FLUX
AND SOLDERING PROCESS

LETTER

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

The Examiner is requested to enter the attached copy of US Patent No. 5,128,746 into the file of the present application. This reference is cumulative to the prior art already of record in the present application.

Respectfully submitted,

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US005128746A

United States Patent [19]

Pennisi et al.

[11] **Patent Number:** 5,128,746[45] **Date of Patent:** Jul. 7, 1992[54] **ADHESIVE AND ENCAPSULANT MATERIAL WITH FLUXING PROPERTIES**[75] **Inventors:** Robert W. Pennisi, Boca Raton; Marc V. Papageorge, Plantation, both of Fla.[73] **Assignee:** Motorola, Inc., Schaumburg, Ill.[21] **Appl. No.:** 588,888[22] **Filed:** Sep. 27, 1990[51] **Int. Cl.:** H01L 23/14; H01L 23/30[52] **U.S. Cl.:** 357/72; 357/80[58] **Field of Search:** 357/72, 80; 156/330, 156/331.8, 335; 106/123, 186, 189, 153, 136; 252/512; 528/8, 114[56] **References Cited****U.S. PATENT DOCUMENTS**

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4,604,644	8/1986	Beckham et al.	357/72
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OTHER PUBLICATIONS

Gabrykewicz, Sangupta, Thuruthumely and Frazee,

"Glob top Material Selection for Flip Chip Devices", Proceedings of the 1986 International Symposium for Microelectronics, 1986, pp. 707-713.

Primary Examiner—Andrew J. James*Assistant Examiner*—S. V. Clark*Attorney, Agent, or Firm*—Daniel K. Nichols; Dale W. Dorinski[57] **ABSTRACT**

An adhesive material 120 including a fluxing agent is applied to either a substrate 100 having a metallization pattern 110 or a solder bumped electrical component 130. The component 130 is positioned on the substrate 110 and the solder bump 140 is reflowed. During the reflow step, the fluxing agent promotes adhesion of the solder 140 to the substrate metallization pattern 110, and the adhesive material 120 is cured to mechanically interconnect and encapsulate the substrate 110 to the component 130.

12 Claims, 1 Drawing Sheet